

STATUS AND PERFORMANCE IN SMALL PROFESSIONAL ORGANIZATIONS: THE CASE OF SCIENTIFIC RESEARCH PROJECTS¹

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AN APPARENT PARADOX EXISTS IN THE PREVAILING TREATMENT OF STATUS and management in small professional organizations.² On the one hand Etzioni (1964), Glaser (1963), Gouldner (1957), Block (1956), Stanton and Schwartz (1954) and Wilson (1942) have argued for a theory of status discordance in the administration of professional organizations. The theory of status discordance asserts that professionals who perform administrative roles either are not as committed to professional values as, or they have a lower professional standing than, their colleagues. Conversely, in studying small professional organizations Gillespie and Mar (1977), Blumstein and Weinstein (1969), Evan and Simmons (1969), Singer (1966), Exline and Ziller (1959), Lenski (1956), Adams (1953) and Collings (1946) found support for a theory of status concordance similar to that advanced by Berger et al. (1972) and Zelditch et al. (1966). Their findings support the idea that higher performing professional organizations tend to have concordance between members' external status characteristics and their position within the professional organization. In the particular case of academic research projects, for example, principal investigators of higher performing projects tended to be of higher academic rank and from more prestigious disciplines. The present study further explores the theory of status concordance by identifying which status characteristics facilitate performance at various stages in the professional organization's maturation.

THEORY OF TEAM STATUS CONCORDANCE

The theory of status concordance argues that organizational success is to a significant degree a function of status concordance and coordination;

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² Professional organizations are those in which professionals are in charge of the primary goal-directed activities, and administrators, if there are any, are in charge of the means to the major activities carried out by the professionals. The professional organizations sampled in the present study would be classified as professional departments within heteronomous professional organizations.

status concordance facilitates smooth coordination, and problem-free coordination enhances the likelihood of success. The status dimension is conceptualized at the group level in a structural manner (Lazarsfeld and Menzel, 1964:428). There are objective status orders reflected in team position (principal investigator or member), age, sex, highest degree obtained, academic rank (professorial levels) and discipline influence. A subjective status ordering is reflected in perceptions of prestige differences between disciplines. Status concordance is defined as matched-equal ranks between the member's team position and age, sex, academic rank, highest degree obtained, discipline influence and discipline prestige. Teams are concordant on each of the six external status dimensions when principal investigators are older, male, senior faculty, with higher academic degrees, and from influential and prestigious disciplines. Teams are discordant when the external statuses of the members are not in accord with their team positions.

METHOD

Sample. The professional organizations selected for this study were academic interdisciplinary research teams from major American universities. A stratified sample of 84 interdisciplinary research projects was drawn from: Harvard University; Massachusetts Institute of Technology; Stanford University; the University of California at Berkeley, Los Angeles, San Diego and San Francisco; the University of Chicago; the University of Houston; the University of Illinois; the University of Ottawa; the University of Pennsylvania; the University of Southern California; the University of Washington; and the University of Wisconsin. These projects included experts in over 50 separate disciplines who were involved in studies that included research on solid state catalysts, the cardiovascular system, electrical properties of bone, arms control, epilepsy, the environment, nutrient upwelling in the oceans, fusion power, urban transportation, social indicators and space exploration.

The U.S. universities in the sample were among the top 22 institutions in terms of federal research support for fiscal year 1973, the latest figures available at the time of the selection. To increase the representativeness of the sample, the first stratum of 43 projects was judgmentally selected by 10 experienced interdisciplinary research managers from across the university community. These persons comprised a local advisory board that advised the investigators throughout the study. The second stratum of 41 projects was drawn using proportional random sampling without replacement from a sampling frame of 103 projects. The sampling frame was constructed using the *Research Center Directory* (Palmer, 1972) and its latest supplements to identify centers and institutes within the top 22 universities. Potential bias in sampling due to drawing only those projects under the aegis of a center or institute was minimized by including proj-

ects in the judgmental stratum that were independent of centers or institutes. These two strata were combined in the analysis by weighting each of the inverse of its sampling ratio in order to adjust for over and under sampling.

Data were gathered by personal interviews and questionnaires. Interviews were conducted with principal investigators and members of the research project team. Questionnaires were also left with each group. Projects were analyzed when one principal investigator and at least one other project member had returned completed questionnaires. This definition of minimum size was necessary in order to include some two-person interdisciplinary projects. The overall response rate to the questionnaire was 94%. This was reduced to 80% when the analyzability criteria were applied. In the majority of instances where projects had to be rejected, it was due to insufficient responses from team members and not to principal investigators. Those rejected appeared to be similar enough in response patterns to those retained in the sample to rule out the possibility of bias due to nonrepresentativeness of respondents.

Measurement. Status concordance was operationalized by computing the difference between ranks on objective measures of the principal investigator and team member's age, sex, highest degree obtained, academic rank and discipline influence, and also on a subjective measure of discipline prestige. Questionnaire responses provided documentation on principal investigator's and team member's age, sex, highest degree and academic rank. Discipline influence was measured using the technique of evaluative bibliometrics (Narin, 1976). Discipline prestige rankings were compiled on the basis of a panel of judges across six disciplines: business, sociology, economics, civil engineering, health sciences and social work. The high degree of agreement among these judges indicated a reasonably sound external evaluation of discipline status.

The measures of status concordance were each computed by (1) setting up a relative numerical scale value of one through the number of positions for each university position represented on a team (the highest position), (2) taking the difference between the scale value of the principal investigator and each member's scale value, (3) adding the differences and (4) dividing by the size of the team in order to standardize the score. This procedure produces positive scores for teams high on the status concordance dimension, negative scores for status discordant teams and intermediate scores for teams between perfect concordance and discordance.

Higher status ranks were assigned to older project members (Gross 1958:129-130), and males were ranked higher in status than females (Lockheed and Hall, 1976). Higher status ranks also were assigned to members with the highest academic degrees (Caplow and McGee, 1958: 139) and to higher academic ranks (Hall, 1969:114). Finally, higher status ranks were assigned to the most influential disciplines as measured by their total influence weight; these ranks were based on between-discipline

citation counts adjusted for citations policies and frequency of publication of journals within each field (Narin, 1976). The rankings of the cross-discipline panel of judges were used to rank the prestige of each discipline relative to the other disciplines within each project.

Drawing upon the work of Lawrence and Lorsch (1969:258-60), integration was measured by asking team members whether the relationship between each position reflected (1) sound relations—full unity of effort achieved, (2) good relations—almost full unity of effort, (3) somewhat better than average relations, (4) average relations—sound enough to get by even though there are many problems of achieving joint effort, (5) somewhat of a breakdown in relations, (6) almost complete breakdown in relations, (7) bad relations—could not be worse; serious problems exist that are not being solved, and (8) relations are not involved. The weighted average level of integration was 5.03 out of a maximum of 7.00 when the scale was reversed for scoring. The standard deviation was .94. A score of 5.00 indicated that the team had somewhat better than average integration.

Team performance was measured from three dimensions found by Mahoney and Weitzel (1969) to be in-process predictors of research team effectiveness: reliability, cooperation and development. Reliability referred to meeting objectives without the necessity of follow-up and checking. Cooperation was defined as scheduling and coordinating activities with other organizations, and rarely failing to meet responsibilities. The third dimension, development, was defined as personnel participating in training and developing activities and having a high level of competence and skill. These dimensions were measured, and a factor scale was computed by weighting each of the three standardized dimensions by its factor score coefficient, and then summing to achieve a single composite scale value.

Data Analysis. The sample was subdivided according to team ages in order to analyze relationships at different stages of team development. Three subgroupings were produced: teams in operation for less than two years, teams operating from two to four years, and teams operating for four or more years. Data were analyzed by using both standard and partial correlation analysis. Status concordance was conceptualized as an independent variable, integration as an intervening variable and performance as the major dependent variable. It was assumed that other variables affecting status concordance, integration and performance were randomly distributed, and would not disturb the basic pattern of the relationships under investigation (Blalock, 1972:445-46).

FINDINGS

The theory of status concordance implies positive relationships between the degree of status concordance and integration, and integration and

successful performance. It also predicts a positive but spurious relationship between concordance and success. The opposing view of status discordant theory implies negative relationships between status concordance and performance since professionals who perform administrative roles are not as committed to professional values or are of lower professional standing than their colleagues. Our findings reported in Table 1 tend to support status concordance for young projects (0-2 years), and status discordance for older projects.

In young projects (0-2 years), only the academic rank measure of status concordance is significant and provides support for the predicted positive relationship between status concordance and integration. In middle-aged projects (2-4 years) only the sex status concordance measure is significant and supports this portion of the theory. No support for this relationship is found for old (over 4 years) projects. The predicted relationship between integration and performance is significant and is also supported for young, middle-aged and old projects. Although not significant, the other correlations tend to support status concordance in young projects.

Status concordance theory further predicts a positive but spurious association between status concordance and performance. No support is found for this aspect of the theory. Instead, the significant findings for academic rank, age and highest degree measures of status concordance indicate that, in young projects (0-2 years), status concordance and performance are positively associated, and this association is not spurious. No support is found for this part of the status concordance theory for projects more than two years old.

Status discordant theory predicts negative associations between status concordance measures and performance. No support for this theory is found in young research projects (0-2 years). Significant status concordance measures for sex and discipline influence provide support for this theory in middle-aged (2-4 years) projects. Status concordance measures of discipline prestige, academic rank and age are significant and provide support for this theory in older (over 4 years) projects.

CONCLUSIONS

In this study we have sought to refine the theory of status concordance by examining six status concordance measures separately over time. Our findings indicate that academic rank and highest degree measures of status concordance maintain a positive association with performance that does not appear to be due to the spurious effect of integration. Significantly, the findings show that for projects together for more than two years status discordance becomes associated with performance. This suggests that older, higher-ranking professionals with higher academic degrees are best used as administrators in the early stages of organizational development. Over time, however, administrators from less prestigious

TABLE 1
Relationships between Team Status Concordance Measures, Integration and Performance

Status Concordance Measures	Zero-Order Correlation			First-Order Partial Correlation: Status Concordance and Performance Controlling for Integration	N*
	Status Concordance and Integration	Integration and Performance	Status Concordance and Performance		
Young Team (0-2 Years)					
Discipline prestige	.04 (.40)	.53 (.001)	-.11 (.22)	-.15 (.14)	50
Academic rank	.32 (.01)	.53 (.001)	.36 (.004)	.24 (.05)	50
Age	-.11 (.21)	.53 (.001)	.15 (.14)	.25 (.04)	50
Sex	.16 (.13)	.53 (.001)	.02 (.44)	-.07 (.31)	50
Highest degree	.15 (.14)	.53 (.001)	.37 (.003)	.35 (.01)	50
Discipline influence	-.30 (.03)	.44 (.003)	.015 (.46)	.17 (.15)	37
Middle-Aged Team (2-4 Years)					
Discipline prestige	-.14 (.24)	.45 (.01)	-.03 (.44)	.04 (.42)	28
Academic rank	.18 (.17)	.45 (.01)	-.01 (.48)	-.10 (.30)	28
Age	-.09 (.31)	.45 (.01)	-.15 (.22)	-.12 (.27)	28
Sex	.41 (.01)	.45 (.01)	-.27 (.08)	-.56 (.001)	28
Highest degree	-.24 (.01)	.45 (.01)	.004 (.49)	.13 (.25)	28
Discipline influence	-.08 (.37)	.46 (.01)	-.24 (.13)	-.24 (.14)	21
Old Team (Over 4 Years)					
Discipline prestige	-.05 (.41)	.48 (.01)	-.30 (.07)	-.31 (.06)	24
Academic rank	-.41 (.02)	.48 (.01)	-.35 (.04)	-.19 (.18)	24
Age	-.37 (.03)	.48 (.01)	-.33 (.05)	-.19 (.19)	24
Sex	-.07 (.37)	.48 (.01)	-.19 (.18)	-.18 (.20)	24
Highest degree	.07 (.37)	.48 (.01)	.10 (.32)	.07 (.37)	24
Discipline influence	.12 (.30)	.33 (.07)	-.02 (.47)	-.06 (.39)	18

* The *Statistical Package for the Social Sciences* weights adding cases. One case was lost in each subgroup when controls for integration were instituted.

and influential disciplines are more closely associated with higher performance, and thus teams that sail ahead blindly on past success or apply early criteria of success to later development are likely to engender problems.

Professional organizations present unique administrative problems. External environments may resist support if the organization does not mirror the hierarchical status order associated with more bureaucratic organizations. For example, in the case of research teams, funding agencies are increasingly requiring accountability, and sharply delineated status orders facilitate accountability by designating specific responsibilities for each position. Early stages of research organization development suggest that preproposal and newly funded projects have learned how to "play the game" by having higher status individuals serve as principal investigators. As the actual work of research progresses, however, the more successful projects appear to shift lower status project members up to administrative positions. Higher status members may either move off the project or shift from administration to focus more on the research. Since 65% of the project leaders in the sample studied tended to spend more than 50% of their time working with the research project it seems that most shift from administrator to researcher as the project progresses. Increased attention needs to be paid to these changes. Not only is there not one best way, but the different best ways change over time. The continuous management of successful organizations must therefore learn both how and when to implement particular principles of organization.

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